

# CEDDA

The Center for  
Experiment Design  
And Data Analysis

U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
Environmental Data Service

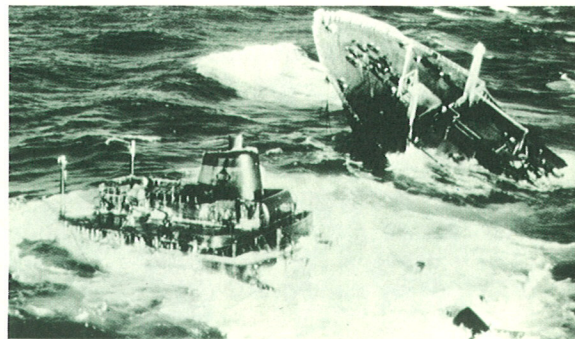
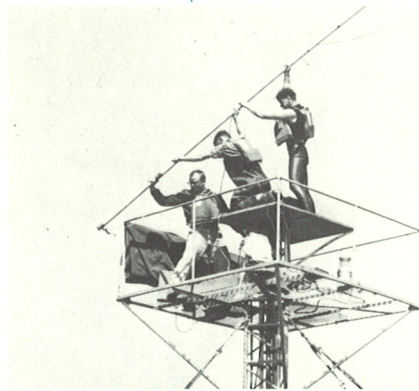


Solutions of many environment-related problems confronting the Nation today are data dependent. Interdisciplinary data must be collected, analyzed, and applied to resolve many aspects of problems such as potential global food shortages, the energy crisis, environmental pollution, climatic anomalies, the wise development of the coastal zone, and even the ill effects of weather and climate on human health. NOAA, the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce, and its Environmental Data Service have the task of assisting decision-makers to better understand and solve problems related to the atmosphere and ocean environments by providing data collection, processing, analysis, and interpretation to meet their specific requirements. This expertise and these services are available from CEDDA, the Center for Experiment Design and Data Analysis, one of six major facilities\* of the Environmental Data Service.

CEDDA has developed broad expertise in all phases of data collection, processing, analysis, and interpretation partly through its involvement in three major field projects and partly through assignments stemming from NOAA's role under the Deepwater Ports Act.

The field projects were BOMEX, The Barbados Oceanographic and Meteorological Experiment; IFYGL, the International Field Year for the Great Lakes; and GATE, the GARP (Global

\* Others are the Center for Climatic and Environmental Assessment, Columbia, Mo.; the National Geophysical and Solar-Terrestrial Data Center, Boulder, Colo.; the National Oceanographic Data Center and Environmental Science Information Center, Washington, D.C.; and the National Climatic Center, Asheville, N.C.



Atmospheric Research Program) Atlantic Tropical Experiment.

BOMEX was a national, multiagency study of the behavior and interaction of the ocean-atmosphere system in subtropical and tropical waters completed in 1969. CEDDA processed and analyzed the BOMEX data, assessed the energy budget of the atmosphere overlaying the survey area and the upper ocean beneath it, and analyzed the energy flow across the sea-air boundary.

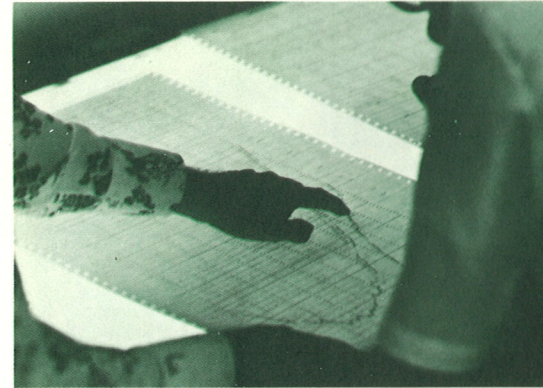
IFYGL was a joint United States-Canadian program of environmental research aimed at achieving more effective management of Great Lakes water resources and at solving the pollution and health problems posed by the growing population of the Great Lakes basin area. CEDDA helped plan the data collection systems, processed the U.S. data, and analyzed boundary layer flow and atmospheric water balance.

GATE was a major observational experiment sponsored by the World Meteorological Organization and the International Council of Scientific Unions to study the equatorial atmosphere and ocean—the main heat sources driving the atmosphere's general circulation. CEDDA scientists and system analysts played a key role in the experiment by formulating specific data requirements, participating in the development and testing of special data collection systems, processing a large part of the data collected by the United States, merging data sets from many participating nations into international data sets designed for specialized scientific analysis and research, and analyzing the radar and planetary boundary layer data.

The extensive experience and expertise of CEDDA scientists and system analysts gained from these projects can be drawn upon to solve today's environmentally-related problems. To assist users of CEDDA's experiment design and data analysis services, the Center is organized around four major program areas: marine applications, climate, mesoscale ocean and atmospheric dynamics, and technical support.

The marine assessment group evolved in response to the Deepwater Ports Act. The group analyzed the environment of two potential supertanker ports to make recommendations to the Department of Transportation on the impact of the structures and the effects of oil spills. Other major projects of the group suggest the type of services that it can provide to users: assessment of the physical, biological, and ecological effects of salt brine released into the Gulf of Mexico from solution-mined salt dome cavities now being used as part of the Strategic Petroleum Reserve program of the Federal Energy Administration; development and application of numerical models of oil transport and weathering; on-site data collection and analysis for spilled oil research; data collection, processing, and analysis for ocean dumping programs; benefit/cost analyses for the Coastal Energy Impact Program of NOAA's Office of Coastal Zone Management; and environmental assessments of coastal and outer continental shelf areas for the Bureau of Land Management.

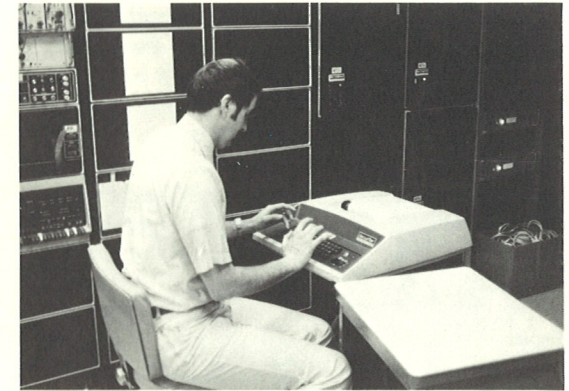
Services provided by the climate group include: inventorying and assembling quality climate data sets for interpreting oceanographic phenomena;



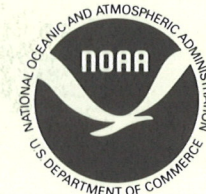
preparing a climate data management plan for the National Climate Program; analyzing the global hydrologic cycle and sea-air interaction; analyzing temperature and soil moisture and their deviations from normal for use in assessing crop production; and processing solar visible and ultraviolet radiation data for energy and health studies.

Services by the mesoscale ocean and atmospheric dynamics group include: analysis of tropical convection, boundary layer structure and turbulent transports, air-sea interaction, and oceanic response to atmospheric forcing; and application of wave forecast models.

The technical support group services include: automatic data processing for all CEDDA programs; application of advanced data base management systems to support atmospheric and oceanic assessment activities; development of an interactive-graphics capability for use in data processing, quality control, and display; and application of statistics and mathematics to development of new assessment models and data analysis and storage techniques.



These are examples of some of the services CEDDA can supply to help decision-makers solve environment-related problems. Additional information can be obtained by writing: Director, Center for Experiment Design and Data Analysis, National Oceanic and Atmospheric Administration, 3300 Whitehaven Street, N.W., Washington, D.C. 20235; or by calling 202-634-7251.



NOAA/PA 77029